Can future managers and business executives be influenced to behave more ethically in the workplace? The impact of approaches to learning on business students' cheating behavior

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Abstract

This study considers the potential for influencing business students to become ethical managers by directing their undergraduate learning environment. In particular, the relationship between business students' academic cheating, as a predictor of workplace ethical behavior, and their approaches to learning is explored. The three approaches to learning identified from the students' approaches to learning (SAL) literature are: deep approach, represented by an intrinsic interest in and a desire to understand the subject; surface approach, characterized by rote learning and memorization without understanding; and strategic approach, associated with competitive students whose motivation is the achievement of good grades by adopting either a surface or deep approach. Consistent with the hypothesized theoretical model, structural equation modeling revealed that the surface approach is associated with higher levels of cheating while the deep approach is related to lower levels. The strategic approach was also associated with less cheating and had a statistically stronger influence than the deep approach. Further, a significant positive relationship reported between deep and strategic approaches suggests that cheating is reduced when deep and strategic approaches are paired. These findings suggest that future managers and business executives can be influenced to behave more ethically in the workplace by directing their learning approaches. It is hoped the evidence presented may encourage those involved in the design of business programs to implement educational strategies which optimize students' approaches to learning towards deep and strategic characteristics, thereby equipping tomorrow's managers and business executives with skills to recognize and respond appropriately to workplace ethical dilemmas.

Keywords: Approaches to learning; deep; strategic; surface; cheating behavior; future

Introduction

In recent years, a series of high profile corporate scandals involving unethical behavior at the highest levels of business has resulted in greater emphasis being placed on ethics as part of business programs to ensure that business graduates entering the working world are already equipped with the "tools for recognizing and responding to ethical issues" (AACSB Ethics Education Task Force 2004, p .9). While most of the focus in this regard has been directed at advancing dedicated ethics education in business curricula (see for example Hartman and Werhane 2009; May et al. 2014), the influence of business students' learning environment on their ethical awareness and ethical reasoning skills has received much less attention. The seminal work in the area by Gray et al. (1994), published some time ago, argued that, in addition to dedicated ethics education, the contextual dimension of students' education can also promote learning patterns to stimulate more informed ethical reasoning and thereby facilitate more sophisticated responses to ethical dilemmas. Gray et al.'s (1994) proposition was derived from reasoned logic rather than empirical findings but, given the timing of their work and the corporate scandals which were to follow, Gray et al.'s (1994) concern proved to be a grave portent for business ethics. Yet, to the authors' knowledge, no subsequent empirical work has developed Gray et al.'s (1994) basic premise. Therefore, in view of the potential which Gray et al.'s (1994) proposition has for influencing business students' ethical awareness and honing their ethical reasoning skills prior to entering a business world scarred by ethics-related scandals (Stevens 2013), the current study empirically tests the relationship between the contextual dimension of business students' learning and their ethical behavior. In particular we focus on exploring the impact of business students' approaches to learning on their academic cheating behavior with a view to influencing the latter by directing the former. Using structural equation modeling (SEM), the results of the current study make a contribution to the literature by providing evidence that business students' ethical behavior is

influenced by their approaches to learning. Since cheating behavior among undergraduates is acknowledged as a predictor of future workplace ethical decision-making (Sims and Felton 2006), the findings suggest that future managers and business executives can be influenced to behave more ethically in the workplace by directing their learning approaches in an undergraduate learning environment. Accordingly, it is hoped that the findings from the study may influence business educators and others involved in the design of business programs to adopt strategies which promote desirable learning approaches and, in so doing, help ensure that tomorrow's managers and business executives acquire the competency to recognize and respond appropriately to ethical issues.

The remainder of the paper is structured as follows. First, a literature review presents a comprehensive consideration of research in the area leading to the development of a hypothesized theoretical model. Following on from this, the research method and measures applied are discussed. Thereafter, the results of the tests undertaken are analyzed and discussed. Finally, conclusions and implications arising from the study are presented while limitations and areas for further research are identified.

Business Ethics and Students' Approaches to Learning

There is general acceptance among the academic community that business schools must be part of a collaborative effort to restore ethical behavior to the corporate world by integrating ethics teaching into their undergraduate curricula (AACSB Ethics Education Task Force 2004; Warren and Tweedale 2002). This view is not restricted to the academic world. Practicing managers are also of the opinion that graduates of business programs should enter the working world with well-established ethical standards as ethics are not learned in the

workplace (Sigurjonsson et al. 2014). However, notwithstanding the agreement among academics and practicing managers regarding the importance of ethics education in business curricula, its inclusion and integration into business programs has not been universal (Jorge and Peña 2014). While there are "encouraging signs of progress" in teaching business ethics at undergraduate level in an international context, "there is still a long way to go before all business students could be said to have had a thorough education regarding ethical…issues" (Jorge and Peña 2014 p. 141). This disappointing statement may well reflect competition among business subjects for limited space on degree programs which potentially renders ethics the poor relation of areas such as marketing or strategy.

Providing all business students with a thorough education in respect of ethical issues is an ideal which must continue to be pursued. However, attention should also be paid to the possibility of influencing business students' ethical decision making across the business curriculum in a more general way as a supplement to ethics teaching. One such proposal emerges from a seminal paper published by Gray et al. (1994) some time ago which argued that, in addition to dedicated ethics teaching, the contextual dimension of students' education can also promote learning patterns to stimulate more informed ethical reasoning and thereby facilitate more sophisticated responses to ethical dilemmas. The basic premise of their research is that, as well as integrating ethics into business curricula, consideration should be given to the contribution which the students' learning environment makes to promoting more informed ethical reasoning through learning. In this context, students' learning environment is defined as the teaching, learning materials and assessment which they experience (Cannon and Newble 2000). By stimulating business students' analytic and conceptual thinking during the course of their studies, it is anticipated that learning patterns acquired will help develop students' capacity for recognizing and responding to ethical issues (Gray et al. 1994). Gray et al.'s (1994) early work in this area reflected concern that tertiary education was

failing to produce graduates with the qualities expected of business professionals, where the term 'professional' is synonymous with principled ethical behavior. They suggested that where students could be encouraged to look for meaning in their subject and critically relate it to other experiences and ideas, they would be more likely to take an insightful approach to addressing future workplace ethical dilemmas. Their argument emanated from the theoretical literature on students' approaches to learning (SAL) (Marton and Säljö 1976), a literature which encompasses models with a "robust scientific basis" (Evans and Sadler-Smith 2006, p. 79). Central to the SAL paradigm is an appreciation of the distinction between the terms learning style and learning approach, often used incorrectly as synonyms. A learning style refers to the relatively stable characteristics of a student's learning behavior represented by personality traits and information processing strategies. It denotes a student's preferred method of grasping and processing information rather than his or her capacity for learning or level of understanding (Kolb and Kolb 2005). A learning approach, on the other hand, takes account of a student's educational context and is associated with a level of understanding. Therefore, while a student's approach to learning is influenced by his or her relatively inflexible underlying learning style, it is also determined by the teaching and assessment which he or she experiences. Accordingly, "a [learning] style is seen as being trait-like and possessing a relatively enduring quality… [whereas] an approach is seen as something malleable, contextual, and open to change" (Duff 2014, p. 165). Given that a learning approach has a direct relationship with educational strategies and activities experienced by students, it follows that it will be more responsive to change than would be the case with a learning style.

The seminal paper in the SAL literature by Marton and Säljö (1976) identified two distinct approaches to learning, namely a deep approach and a surface approach. Students adopting a deep approach are motivated by an intrinsic interest in and a desire to understand the subject.

The characteristics associated with a deep approach include focusing on meaning, relating and structuring ideas, thinking creatively, weighing relevant evidence and critically evaluating knowledge (Biggs et al. 2001; Loyens et al. 2013). In contrast, a surface approach to learning is associated with "an intention to reproduce content, learning processes characterized by syllabus-boundness, habitual and inappropriate use of rote learning, and attempts to commit information to memory without making connection to pieces of knowledge" (Loyens et al. 2013, p. 24). Subsequent research identified a third approach, namely the strategic approach which is associated with competitive students whose predominant motivation is the achievement of good grades. Their intention is to outperform others (Entwistle 1988a, 1988b; Entwistle et al. 2000; Tait et al. 1998) and to achieve their aim they adopt a deep or a surface approach, depending on which is likely to produce the most successful results (Newble and Entwistle 1986). In this regard, research suggests that business students exhibiting strategic learning characteristics are more likely to achieve their goal of good grades by adopting an approach based on a desire to understand (deep) rather than one of rote memorization (surface) (Rodriquez 2009). Accordingly, the strategic approach, when paired with the deep approach to learning, incorporates extrinsic motivations in the form of academic goals and expectations with an intrinsic desire to master concepts and theories. The paired effect of a deep and strategic approach among business students reflects "joint motivations, as in the decision to major in marketing where career achievement, clearly a strategic approach, and broadening their education, a deep orientation, are present" (Rodriquez 2009, p. 527). Indeed, Rodriquez's (2009) study found evidence that academic achievement was greater when business students combined strategic and deep learning rather than adopting deep learning alone. This view is supported by Duff (2004a) and Richardson (2013) who also promote strategic learning as a desirable approach despite its extrinsic motivations. However, it is worth noting in the context of the current study that early work by Biggs (1993) calls into question the desirability of the strategic approach by

pointing out that strategic students, being outcome-orientated and pathological in nature, are so preoccupied with the cost effective use of time and effort that they may consider cheating to meet their objective of good grades.

A number of teaching and assessment strategies have been recommended in the academic achievement literature to move business students away from a surface to a more desirable deep or strategic approach to learning (Rodriquez 2009 and Duff 2004a). For example, Duff (2004a) suggested that surface-promoting assessment strategies such as multiple choice testing and essay questions requiring preset answers should be replaced by, for example, continually-assessed projects which promote a more desirable learning approach. In so doing, business educators are more likely to "assess the cohesive and structural qualities of learning, rather than assessing discrete quantities" (Duff 2004a, p. 66). Duff (2004a) also recommended the adoption of cooperative learning as a teaching strategy designed to promote desirable learning. Cooperative learning emphasizes the importance of a number of elements in the learning process including: positive interdependence where group members perceive the need to work with others in their group to successfully complete group tasks; individual accountability where group members are held accountable for completion of the group task; and group processing wherein group members are responsible for monitoring the group's performance (Ballantine and McCourt Larres 2009). Turner and Baskerville (2013) reported positively on a cooperative learning intervention which optimized students' approaches to learning towards more desirable characteristics. The intervention consisted of an individualized (i.e. differentiated for each student) authentic (i.e. reflecting real-world situations) assessment, together with regular feedback from the instructor. In the same vein, Gordon and Debus (2002) advocated the use of problem-based learning (i.e. solving open-ended problems) to promote a desirable approach to learning. This strategy involved the use

of case studies, self and peer assessment and emphasized linkages between theory and practice.

The aforementioned strategies which promote desirable learning exhibit a common characteristic, namely student 'centeredness' wherein student activity, responsibility and exposure to authentic assignments replace the passivity of didactic-type teaching. Accordingly, they support student independence, encourage the educator to act as a facilitator and use knowledge as a tool in the learning process rather than allowing it to become an aim in itself (Cannon and Newble 2000). However, notwithstanding the effort which educators may make to introduce an innovative learning environment, it should also be borne in mind that students need to be accepting of the environment and perceive it to be appropriate if it is to succeed in promoting desirable learning (Richardson 2005). A positive preception among students of features such as teaching quality, adequacy and volume of course material and appropriateness of assessments is associated with a deep approach to learning while, alternatively, negative perceptions lead to a surface approach (Diseth 2007).

The Relationship between Students' Motivation to Learn and Cheating

While the relationship between SAL and cheating has not been investigated in the academic literature, a small number of cross-disciplinary studies have considered the impact of students' motivation to learn on their cheating. One of the earliest of these studies was by Newstead et al. (1996). It was one of very few studies to analyze cheating on a category by category basis and reported that "individuals with learning goals are more likely to persist in challenging tasks and… less likely to resort to cheating" (p. 229). More recently, Murdock and Anderman (2006) drew attention to the premise that "students' achievement goals are related to frequency of cheating in predictable ways [namely that] the pursuit of mastery

goals is related to decreased cheating, whereas the pursuit of performance and extrinsic goals is related to greater cheating" (p. 131). Mastery, which refers to a genuine desire to understand, is associated with high intrinsic value whereas the pursuit of performance and extrinsic goals refers to an interest only in external indicators of achievement such as grade attainment.

Also of relevance to the debate is an Australian study by Marsden et al. (2005) which involved an empirical examination of the relationship between students' cheating behavior and their academic orientation where academic orientation is defined as a psychological construct which "reflects a person's orientation towards learning for its own sake, or the achievement of good grades" (p. 3). Marsden et al. (2005) operationalized the classification of cheating behavior into three categories, namely cheating, plagiarism and falsification of data and reported an inverse relationship between learning orientation (i.e. learning for its own sake) and cheating behavior in each of the categories. However, Marsden et al. (2005) counseled against over-reliance on these results in that the instrument used in their study to measure academic orientation demonstrated poor internal reliability and may not therefore have been appropriate for the Australian students surveyed.

More recently, Van Yperen et al. (2011) explored the relationship between achievement goals and cheating behavior across three domains, namely education, workplace and sport. In the first of two studies, undergraduates from an undisclosed field of study were asked to assess cheating behavior in a number of vignettes depicting situations representing each of the three domains. The authors reported that unethical behavior appears to be a function of dominant achievement goals in each of the three domains. In their second study undergraduates performed a task in which some participants engaged in cheating. The findings from study 2 supported those of study 1 in that both reported performance goals being more strongly

associated with cheating than is the case with mastery goals. Van Yperen et al. (2011) reported the significance of their work in terms of future workplace behavior and deduced that "recognizing and understanding the effects of achievement goals on cheating behavior may enable business leaders, organizations and their employees to create ethical organizations" (p. S5).

Hypotheses Development

Drawing on empirical findings and a review of the relevant literature (for example, Biggs 1993; Gray et al. 1994; Duff 2004a; Marsden et al. 2005; Murdoch and Anderman 2006; Richardson 2013), a number of hypothesized relationships are developed. First, students adopting a deep approach to learning are more likely to have developed sophisticated or informed ethical reasoning to reach a moral judgment and therefore are less likely to cheat. Accordingly, it is hypothesized that a deep approach to learning is negatively associated with cheating behavior. Secondly, students exhibiting a surface approach to learning, characterized by rote-learning and memorization, are less likely to have developed sophisticated ethical reasoning to reach a moral judgment and are therefore more likely to cheat. Consequently, a positive relationship between a surface approach to learning and cheating behavior is posited. Finally, given the ambiguity which arises between the views expressed by Duff (2004a), Rodriquez (2009) and Richardson (2013) that a strategic approach to learning is desirable, and by Biggs (1993) that outcome-orientated strategic learners may resort to cheating to meet their objective, the relationship between a strategic approach to learning and cheating behavior is stated as indeterminate. The relationships explored in the current research are summarized in the hypothesized theoretical model shown in Figure 1.

Method

The objective of the study is to determine whether the ethical behavior of future managers and business executives, as represented by business students' self-reported cheating behavior, is influenced by their approach to learning. Accessing data on cheating behavior can, however, be problematic for a number of reasons. First, recorded instances of cheating only capture details of those who are caught. Successful cheaters do not get caught. Furthermore, official figures only reflect certain types of cheating activity. Therefore, such reports are likely to understate the problem. Secondly, simulations which attempt to capture cheating behavior are fundamentally flawed in that they cannot completely re-create the range of circumstances which influence students' actual cheating behavior and therefore do not represent authentic ethical dilemmas with which students are faced. Rather, such simulations create artificial one-dimensional settings often representing unrealistic scenarios. Furthermore, the ethics of creating a situation in which students are given the opportunity to engage in cheating with no meaningful penalty are highly questionable. For these reasons, it was considered appropriate to collect data pertaining to students' self-reported engagement in a range of cheating behavior. These data were subject to factor analysis to identify an appropriate factorial structure while frequency tests were conducted to examine student engagement in each behavior. Students' approaches to learning were also measured. Reliability estimates and inter-correlations for all study variables were explored. Finally, the hypothesized theoretical model representing the relationship between students' approaches to learning and cheating behavior was tested using structural equation modeling (SEM).

Sample and Data Collection

A total of 502 undergraduate business students (291 females, 211 males), based at two medium-sized UK universities, completed a paper-based questionnaire[1]. While the age of the respondents ranged from 18 to 33, with an average of 20.6 (SD=1.56), only 2.4% were older than 23. All of the participants have studied business ethics as part of their degree programs and are therefore homogeneous in this regard. While business ethics instruction primarily takes the form of a dedicated module, some ethics themes are also embedded within other modules across the degree programs. In line with ethical guidelines, the questionnaire was approved by the ethics committees of the two universities. Participants completed the questionnaire during normal class time. To encourage honest answers, the survey was administered by one of the researchers, as opposed to the timetabled lecturer. Students were informed that participation was voluntary and, due to the sensitive nature of the information, were assured that the results would be used for research purposes only and that anonymity and confidentiality would be respected.

Measures

Approaches and Study Skills Inventory for Students (ASSIST)

To collect data on approaches to learning, the researchers employed a frequently-used research instrument, namely the Approaches and Study Skills Inventory for Students (ASSIST) (Tait et al. 1998). To encourage a favorable response rate and to ease data collection, the short-form ASSIST was used (Diseth et al. 2010). The short-form ASSIST has been adopted and validated in a number of previous studies (Cermakova et al. 2010; Moneta et al. 2007; Zhu et al. 2008). It measures three approaches to learning, namely deep,

surface and strategic, each comprising six items. The inventory was scored by requiring students to indicate their level of agreement with statements pertaining to each of the three approaches using a 5-point Likert scale ranging from 1=strongly disagree through to 5=strongly agree.

Cheating Behavior Inventory

Cheating behavior was measured using a 34-item self-report inventory requiring respondents to indicate the extent of their past academic cheating across a range of behaviors. It was developed from a comprehensive review of the literature (see for example Allmon et al. 2000; Jurdi et al. 2012; McCabe et al. 2001; Newstead et al. 1996; Payan et al. 2010). Of the 34 items identified and included in the questionnaire, 13 items related to cheating in exams and 21 to coursework. Examples of exam cheating include 'using unauthorized material in an examination' and 'engaging in premeditated collusion during an examination'. Examples of coursework cheating behavior included 'copying information directly from a website, book or academic journal without referencing the source' or 'allowing your coursework to be copied by another student'. Participants reported the extent to which they had engaged in the cheating behavior (as a percentage of their total coursework or examinations) using a five-point Likert scale (1 = never; 2 = 1-24%; 3 = 25-49%; 4 = 50-74%; and 75-100%).

Results

The Factorial Structure of Cheating Behavior

Exploratory factor analysis (EFA) was used to examine the factorial structure of the cheating behavior inventory. Principal component analysis, using oblimin rotation, identified three factors (comprising 22 items in total)[2] which were labeled as follows: (i) Plagiarizing and manipulating data or references in coursework (nine items loaded); (ii) Contravening examination regulations (five items loaded); and (iii) Lying/bribery/impersonation in coursework and examinations (eight items loaded).

Consistent with Diamantopoulos and Siguaw (2006), confirmatory factor analysis (CFA) was used to assess model fit. CFA tests the model derived from the EFA together with a number of competing models on the basis of pre-established theory and provides stronger evidence of validity than EFA (Thompson and Daniel 1996; Duff 2003). To asses model fit, a number of fit indices were reported, namely Chi-square (χ^2), degrees of freedom (df), the Chi-square goodness-of-fit to degrees-of-freedom ratio (χ^2/df), the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR). The ratio χ^2/df is the most commonly reported model-fit statistic with a decision rule that χ^2/df should be less than 3 for a good model fit (Byrne 2001; Kline 2005). RMSEA is regarded as "one of the most informative fit indices" (Diamantopoulos and Siguaw 2000, p. 85) and SRMR is considered as "the most sensitive index to models with misspecified factor covariance(s)" (Hu and Bentler 1999, p. 5). The combinational rule of Root-mean-square Error of Approximation (RMSEA)<0.06 and Standardized Root-mean-square Residual (SRMR)<0.08 was also used as it is "extremely sensitive in detecting models with misspecified factor covariance(s)" (Hu and Bentler 1999, p. 26).

For comparison purposes CFA was conducted on three models. The first model was a one-factor model with all 22 items considered as belonging to one factor. This model provided a less than satisfactory fit to the data (χ^2=642.28; df=188; χ^2/df=3.42; RMSEA=0.069;

SRMR=0.094). The second model, created for comparison purposes, was a two-factor model with 22 items representing two factors (i.e. student cheating behavior in coursework and exams). This model provided a poor fit to the data (χ^2=723.39; df=193; χ^2/df=3.75; RMSEA=0.074; SRMR=0.121). The third model, derived from the EFA results, with 22 items representing the three factors provided a good fit to the data (χ^2=394.30; df=196; χ^2/df=2.01; RMSEA=0.045; SRMR=0.063). Collectively, the CFA results showed that the third model demonstrated the best model fit and consequently the factorial structure identified in the EFA was used in further testing.

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Analysis of Cheating Behavior

Levels of students' reported cheating behavior are set out in Table 1. Panels A, B and C reflect the three factors identified in the EFA. The first column provides details of cheating behavior which correspond to the factor items. The next column reports the percentage of respondents who reported never having engaged in the cheating behavior while the remaining three columns set out the extent of self-reported cheating in 1-24%, 25-49% and 50-100% of coursework or examinations.

Insert Table 1 here

Panel A indicates that 404 respondents (80.5% of total respondents) reported that they had engaged in at least one of the nine items which make up factor 1, namely behavior relating to plagiarism and manipulating data or references in coursework. This relatively high level of cheating behavior is comparable with the findings of a limited number of studies which attempt to measure plagiarism using software such as Turnitin and therefore challenges

claims in the literature that self-reported levels of plagiarism may be underestimated (Martin 2012). Accordingly, cheating within factor 1 appears to be most prevalent with respect to paraphrasing and summarizing information without adequate referencing (behavior 1) and copying directly from sources without providing quotation marks (behavior 2). While fewer respondents indicate that they have engaged in the remaining seven items, nevertheless the levels of self-reported cheating (ranging from 30% to 57%) give cause for concern. Taken together, the findings reported in Panel A suggest that dishonest behavior regarding plagiarism, copying and manipulating data or references in coursework appear to have become rather commonplace among business students. A possible explanation for this could be that increased access to information via the internet and widespread 'sharing' of data through social-networking has created a culture in which it has become acceptable to, for example, incorporate unread references and take others' ideas and pass them off as one's own. To this end, students may view this type of activity as a lesser form of dishonesty (Martin et al. 2009). Such relaxed attitudes to this type of cheating, if left unchallenged in an educational setting, may follow through to the corporate world and manifest themselves in related unethical behavior in the workplace.

Panel B indicates that 178 respondents (35.5% of total respondents) reported engaging in at least one of the five items which comprise factor 2, contravening examination regulations. Copying from others (behavior 1) and obtaining and providing unplanned help to others (behavior 2 and 3) in examinations are the most prevalent self-reported items in this category. However, the use of unauthorized materials in an examination (behavior 4) and engaging in pre-meditated collusion (behavior 5) during an examination are also fairly widespread. Overall, while the findings indicate that a substantial number of business students engage in factor 2 behavior, the levels are lower than for factor 1. This may be explained by the fact

that the likelihood of being caught engaging in factor 2 behavior is greater since this behavior is more visible (Van Yperen et al. 2011) than factor 1 behavior.

Panel C provides levels of self-reported cheating for factor 3, namely behavior related to lying, bribery and impersonation in coursework and examinations. The results reveal that 37 respondents (7.4% of total respondents) admitted to engaging in at least one of these more serious types of behavior. The predominant behavior in factor 3 is lying about medical or other circumstances to get special consideration in the form of extra time to complete an examination. While the number of respondents reporting engagement in serious behavior such as bribery or blackmail is relatively low, given the fact that it borders on criminality, concern should be expressed that any business student is prepared to commit an act of this nature.

Descriptive Statistics for Study Variables

The means and standard deviations for the three student approaches to learning are reported in Table 2. A comparison of the mean scores indicates that respondents score highest on the strategic approach. Further, paired sample t-tests reveal significant differences in the mean score for the strategic approach ($M=3.42$, $SD=0.65$) when compared to both the surface ($M=3.26$, $SD=0.64$; $t(501)=3.63$, $p<0.001$) and the deep ($M=3.21$, $SD=0.60$; $t(501)=7.26$, $p<0.001$) approaches, indicating that the participants have a preference for a strategic approach to learning. This finding supports prior evidence that business students orientate towards a strategic approach to learning (Rodriguez 2009) which is consistent with managers' determination to succeed: a characteristic which tends to be more prevalent in business than in other occupations (Murphy and Tyler 2005).

Insert Table 2 here

Reliability and Correlations

Cronbach's (1951) alpha (α) coefficients were calculated to assess the internal consistency reliability of the non-dichotomous items explored in this study. Cronbach's alpha is the most commonly accepted measure of internal consistency reliability for scores produced by a research instrument (Hinkin 1995) and assesses the interrelatedness of a set of items, indicating the extent to which they measure the same concept or construct. Alpha values normally range from 0 and 1, with higher values indicating greater internal reliability. A Cronbach's alpha value of 0.70 or greater is considered acceptable for instruments used for applied research (Nunnally 1978), although it "may decrease to 0.60 in exploratory research" (Hair et al. 2010, p. 125). A maximum alpha value of 0.90 has also been recommended in the literature (Streiner, 2003; Tavakol and Dennick, 2011), as excessive alphas suggest high levels of item redundancy (Streiner and Norman, 1989). Mathematically, Cronbach's alpha measures the proportion of variability in responses to a survey instrument which arise from different opinions among respondents, rather than variability arising from confusion or misinterpretation.

The Cronbach's alpha coefficients for scores yielded by the three student approaches to learning are presented in Table 2: surface approach α=0.71 (confidence interval of 95% from 0.67 to 0.75); deep approach α=0.72 (confidence interval of 95% from 0.68 to 0.76); and strategic approach α=0.76 (confidence interval of 95% from 0.72 to 0.79). Given that all three alpha coefficients exceed the cut-off value of 0.70 (Nunnally 1978), this suggests that internal reliability in the current study was acceptable with respect to the learning approaches

and that the Approaches and Study Skills Inventory for Students (ASSIST) consistently measures a surface, strategic and deep approach to learning. In addition, Cronbach's alpha coefficients (un-tabulated) for the three cheating factors were as follows: plagiarizing and manipulating data or references in coursework α=0.82 (confidence interval of 95% from 0.79 to 0.84); contravening examination regulations α=0.79 (confidence interval of 95% from 0.76 to 0.82); and lying/bribery/impersonation in coursework and examinations α=0.82 (confidence interval of 95% from 0.80 to 0.85). The Cronbach's alpha coefficients for the cheating factors reported exceed 0.70 (factor 2) and 0.80 (factors 1 and 3) thus indicating acceptable to good reliability. The alpha coefficient values suggest that the cheating behavior inventory provides a consistent measure of reliability with respect to each of the factors.

Correlation coefficients between the study variables are also reported in Table 2. The strategic approach was found to be negatively related to the surface approach (r=-0.19) and positively related to the deep approach (r=0.44). Both relationships were statistically significant ($p<0.01$) and consistent with prior literature (Duff 2004b; Gordon and Debus 2002; Zhu et al. 2008). In addition, there was a statistically significant, negative relationship between the students' deep approach and factor 1 (r=-0.18). Finally, the correlations between the students' strategic approach to learning and the three cheating behavior factors were all negative and statistically significant: factor 1 (r=-0.28); factor 2 (r=-0.22); and factor 3 (r =-0.12)[3].

Testing the Theoretical Model

SEM was conducted to test the theoretical model using AMOS, statistical analysis software (Arbuckle, 2006). Standardized regression coefficients produced by AMOS were used to

interpret the SEM results (Mueller and Hancock, 2008). The standardized regression coefficients and corresponding p-values together with model fit indices are reported in Table 3. The model fit indices exceeded the conventional thresholds (χ^2=1488.80; df=772; χ^2/df=1.93; RMSEA=0.048; SRMR=0.074). Therefore, the theoretical model demonstrated a good fit with the data. SEM identified a number of statistically significant results. First, surface approach was found to be positively related to factor 2 (contravening examination regulations) (0.13, $p<0.05$) and factor 3 (lying/bribery/impersonation) (0.11, $p<0.05$). Secondly, negative relationships were found between deep approach and factor 2 (contravening examination regulations) (-0.19, $p<0.05$) and between deep approach and factor 3 (lying/bribery/impersonation) (-0.17, $p<0.05$). These results for surface and deep approaches indicate broad support for the hypothesized model. Finally, negative relationships were found between strategic approach and factor 1 (plagiarizing and manipulating data or references in coursework) (-0.43, $p<0.001$), between strategic approach and factor 2 (contravening examination regulations) (-0.45, $p<0.001$) and between strategic approach and factor 3 (lying/bribery/impersonation in coursework and examinations) (-0.28, $p<0.05$). Two relationships of a non-significant nature were also found with respect to factor 1: a positive relationship with surface approach (0.07, $p=0.23$) and a negative relationship with deep approach (-0.04, $p=0.65$).

The significant standardized regression coefficients representing the relationships between students' approaches to learning and cheating factors found by SEM are presented in Figure 2. Also reported are statistically significant standardized coefficients among students' approaches to learning, namely a positive relationship between strategic and deep approaches (0.60, $p<0.001$) and a negative relationship between strategic and surface approaches (-0.27, $p<0.001$). The standardized regression coefficients indicate the strength of the various relationships depicted in Figure 2. For example, with respect to the relationships reported

between learning approaches and cheating factors, the weakest relationships are between a surface approach to learning and factors 2 (0.13) and 3 (0.11) while the strongest are between the strategic approach and all three factors (-0.43, -0.45 and -0.28). Moreover the sign of the coefficients indicates the direction of the relationship with the surface approach being associated with an increase in cheating behavior for factors 2 and 3 whereas a strategic approach and a deep approach are associated with a reduction in cheating behavior. With respect to the two approaches which make a favorable contribution to cheating behavior, namely deep and strategic, the stronger influence of strategic approach, as indicated by the higher standardized regression coefficients for factors 2 and 3, was confirmed as statistically significant in Mann-Whitney U tests (untabulated) (factor 2, U=6775.000, p=0.029; and factor 3, U=7104.500, p=0.015). Accordingly, it would appear that directing students towards a strategic approach can effect a more favorable influence on cheating behavior. However, the strong standardized regression coefficient reported between the deep and strategic approaches (0.60) should also be highlighted insofar as this significant relationship is consistent with the literature and confirms empirical findings that the strategic and deep approaches to learning are closely related or paired among business students (Rodriquez, 2009). This pairing, taken together with the significant relationship reported between a deep approach and factors 2 and 3, indicates that optimizing business students' learning towards a deep approach also has the potential to make a positive contribution to cheating behavior.

Insert Table 3 here

Insert Figure 2 here

Discussion and Conclusion

The current study considers the potential for improving ethical behavior in business by focusing attention on future managers' undergraduate learning environment. In particular, the relationship between business students' cheating, as a predictor of future ethical behavior, and their approaches to learning is explored. Consistent with the hypothesized theoretical model, business students in the study adopting a surface approach to learning, characterized by rote learning and memorization without accompanying understanding, are more likely to engage in cheating behavior across all three factors identified, with statistical significance found for factors 2 and 3. Accordingly, the conclusion can be drawn that business students in general who adopt a surface approach to learning are more likely to contravene examination regulations (factor 2) and engage in lying, bribery and impersonation in coursework and examinations (factor 3). The finding with respect to deep learning also proves consistent with the theoretical model in that business students in the study who adopt a deep approach to learning, which is associated with the development of analytical and conceptual thinking, are less likely to engage in cheating behavior across all three factors. Consistent with surface learning, statistical significance for deep learning is reported for factors 2 and 3. To this end, it would appear that business students in general who adopt a deep approach to learning are less likely to contravene examination regulations (factor 2) and engage in lying, bribery and impersonation in coursework and examinations (factor 3). This finding provides support for Gray et al.'s (1994) theoretical proposition that the contextual dimension of students' education can promote learning patterns to stimulate more informed ethical behavior. Finally, the study reports statistical significance between a strategic approach to learning and cheating for all three factors. In particular, when compared with the deep approach which is also significantly related to a reduction in cheating behavior for factors 2 and 3, the strategic approach returned a stronger favorable influence. Accordingly, it would appear that business

students who adopt a strategic approach to learning are the least likely to engage in all of the cheating behavior identified. This finding provides empirical evidence which contradicts Biggs's (1993) theory-based assertion that students adopting a strategic approach to learning are more likely to resort to cheating to achieve their aims. Instead, it offers another layer of support for strategic learning being a desirable approach for business students (Duff 2004a and Richardson 2013). Moreover, the positive relationship reported between the strategic and deep approaches to learning provides evidence that the extrinsic motivation of strategic business learners complements the intrinsic motivation of deep learners to ensure a more ethical position across all cheating behavior. Accordingly, it would appear that optimizing business students' approaches to learning towards deep and strategic not only supports academic achievement (Rodriquez 2009) but also makes a positive contribution to ethical behavior.

The recommendation emerging from this study is that, if business educators are to equip their graduates with the "tools for recognizing and responding to ethical issues" (AACSB Ethics Education Task Force 2004, p. 9) they should pay attention to business students' approaches to learning. In addition to incorporating dedicated ethics education into their syllabi, business educators should create an appropriate learning environment by adopting teaching and assessment strategies which optimize students' learning approaches towards deep and strategic characteristics. In so doing, the expectation is that enhanced analytical and conceptual thinking associated with desirable learning will stimulate ethical reasoning to facilitate more informed judgment with respect to ethics-based workplace dilemmas (Gray et al. 1994). In particular, educators who employ surface-promoting teaching and assessment strategies such as conventional didactic teaching with its strong focus on teacher-control, multiple choice questions and essays requiring preset answers should be encouraged to embrace alternative strategies such as continually-assessed projects, individualized authentic

assessment, cooperative learning and problem-based learning which emphasize student centeredness and promote student independence, responsibility and activity during learning.

When establishing a student-centered learning environment to stimulate deep and strategic learning, business educators must also consider course structure and focus on factors such as suitable learning material, appropriate workload, clearly defined learning outcomes and the provision of timely and constructive feedback. Furthermore, students' opinions of the learning environment cannot be ignored insofar as their perceptions contribute to the success of a learning environment in promoting desirable learning (Richardson 2005). To this end, student input into course design should be encouraged and facilitated. Moreover, business students should be made aware of the concept of learning approaches and the potential which deep and strategic approaches have to positively influence ethical behavior. In practical terms, this would require business students to complete an approaches to learning inventory early in their academic careers and at regular intervals thereafter, as they progress through their studies. This process should be accompanied by self-reflection on the part of the students to consider how, with instruction and guidance from educators, they might adopt a deeper, more strategic approach to learning over time.

The current study makes a contribution to the ethics literature by providing valuable insights into the ethical behavior of future managers and business excutives. In particular, the findings suggest that future managers and business excutives can be influenced to behave more ethically by promoting deep and strategic learning within the undergraduate business environment. Accordingly, as gatekeepers for the profession (Saunders 1993), business educators should be encouraged to adopt a learning environment which promotes a deeper, more strategic approach to learning among their students. The business world is ill-served by dishonest business students graduating and entering the workplace with a set of dubious

ethical values. Given the potential to transfer enhanced ethical awareness from the classroom to the workplace through deep and strategic learning, the expectation is that learning approaches will influence future business managers' and executives' ethical workplace behavior.

Limitations and Suggestions for Further Research

The study provides important evidence regarding the impact of students' learning approaches on academic cheating which is suggestive of further research. First, the relatively high level of cheating behavior reported in the study gives some cause for concern in light of the fact that all of the students had previously taken a business ethics course. To this end, future research could usefully explore whether dedicated business ethics instruction could be made more effective if delivered in conjunction with strategies designed to promote deep and strategic learning approaches. Secondly, the study reports on the experiences of undergraduate students only. Further studies could test the theoretical model developed in the current study using data collected from postgraduate students and in so doing add to the limited empirical literature in this area. In particular, the impact of greater maturity and relevant work experience on postgraduate students' approaches to learning and how this may influence academic cheating would be worthy of future research. Thirdly, additional opportunities for future research would include an investigation of the impact of culture and business ethics education on students' approaches to learning and academic cheating behavior. The homogeneity of the student cohort in the current study with respect to culture and ethics education has negated the requirement to analyze the impact of these variables. However, further research could usefully explore these dimensions by drawing on student samples which demonstrate heterogeneity with regard to culture and ethics education. Finally, the methodological approach adopted in the current study, comprising a survey of

business students, was positivist in nature. This paradigm was considered appropriate in order to provide a general picture of the impact of students' approaches to learning on academic cheating, given the absence of empirical studies in the literature to date. Whilst a positivist approach facilitates quantitative analysis, it does not provide thick descriptions of the relationship between the variables. Accordingly further research might adopt an interpretivist approach involving, for example, interviews and focus groups with business students to gain further insights into the impact of students' approaches to learning on academic cheating.

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Table 1: Business Students' Self-reported Cheating Behavior

Panel A: Factor 1

Plagiarism and Manipulating Data or References in Coursework (*n=404, 80.5% of total respondents*)

	Extent of Cheating Behavior			
Please indicate the extent to which you have engaged in the following cheating behavior in coursework:	**Never**	**1-24%**	**25-49%**	**50-100%**
1. Paraphrased/summarized information from a website/ book/academic journal without referencing the source	27.0%	53.5%	12.4%	7.1%
2. Copied information directly from a website, book or academic journal with reference to the source without providing quotation marks	28.4%	48.3%	18.1%	5.2%
3. Copied information directly from a website, book or academic journal without referencing the source	42.9%	41.8%	10.19%	5.2%
4. Allowed your coursework to be copied by another student	47.8%	40.8%	8.4%	3.0%
5. Added items to a bibliography which were not used in writing an assignment (i.e. padding)	48.0%	34.9%	10.2%	6.9%
6. In a peer review situation, come to an agreement with another student(s) to mark each other's work more generously than it merits*	53.0%	29.2%	8.4%	9.4%
7. Fabricated references or a bibliography	56.7%	28.2%	10.2%	4.9%
8. Altered data (e.g. adjusting data to obtain a significant result)	60.6%	30.4%	5.0%	4.0%
9. Invented data (i.e. entering non-existent results into a database) and reported it	69.8%	22.8%	4.5%	2.9%

Panel B: Factor 2

Contravening Examination Regulations (*n=178, 35.5% of total respondents*)

	Extent of Cheating Behavior			
Please indicate the extent to which you have engaged in the following cheating behavior in examinations:	**Never**	**1-24%**	**25-49%**	**50-100%**
1. Copied from a neighbor during an examination without him/her realizing	45.5%	44.9%	8.4%	1.2%
2. Obtained unplanned help from someone else during an examination	46.0%	48.8%	5.6%%	0.6%
3. Provided unplanned help to someone else during an examination	48.3%	43.3%	6.7%	1.7%
4. Used unauthorized material in an examination (e.g. 'cribs', pre-programmed calculator, electronic device)	57.3%	32.6%	5.6%	4.5%
5. Engaged in premeditated collusion between two or more students to help each other during an examination	66.8%	27.0%	3.4%	2.8%

Panel C: Factor 3

Lying/Bribery/Impersonation in Coursework and Examinations (*n=37, 7.4% of total respondents*)

	Extent of Cheating Behavior			
Please indicate the extent to which you have engaged in the following cheating behavior in coursework/examinations:	**Never**	**1-24%**	**25-49%**	**50-100%**
1. Lied about medical or other circumstances to get special consideration in the form of extra time to complete an examination	56.8%	35.1%	2.7%	5.4%
2. Bribed or blackmailed a fellow student or a lecturer/professor to provide unauthorized assistance with regard to coursework	70.3%	21.6%	5.4%	2.7%
3. Lied about medical or other circumstances to be permitted to sit the examination at a later stage	70.3%	24.3%	5.4%	0%
4. Lied about medical or other circumstances to get the examination board to take a more lenient view of your result	73.0%	24.3%	0%	2.7%
5. Bribed or blackmailed a fellow student or a lecturer/professor to provide unauthorized assistance with regard to an examination	81.1%	10.8%	2.7%	5.4%
6. Done another student's coursework for him/her for financial reward	81.1%	16.2%	0%	2.7%
7. Taken an examination for someone else	86.5%	8.1%	2.7%	2.7%
8. Had someone else take an examination for you	91.9%	2.7%	2.7%	2.7%

*Item truncated or paraphrased

Table 2: Means, standard deviations, internal consistency reliability estimates and correlation matrix for overall sample (*N* = 502)

Construct	Mean	Std. Dev.	Alpha
SRA	3.26	0.64	0.71
DPA	3.21	0.60	0.72
STA	3.42	0.65	0.76

Construct	SRA	DPA	STA	F1	F2
DPA	0.01				
STA	-0.19**	0.44**			
F1	0.06	-0.18**	-0.28**		
F2	0.02	-0.05	-0.22**	0.41**	
F3	0.06	-0.02	-0.12**	0.20**	0.29**

Note: SRA = Surface approach to learning; DPA = Deep approach to learning; STA = Strategic approach to learning.
F1 = Factor 1 (plagiarizing and manipulating data or references in coursework)
F2 = Factor 2 (contravening examination regulations)
F3 = Factor 3 (lying/bribery/impersonation in coursework and examinations)
** Correlation coefficient is statistically significant at $p < 0.01$

Table 3: Results of relationship testing via SEM and CFA model fit statistics

Relationship	Standardized regression coefficient	p-value
SRA → F1	0.07	0.23
SRA → F2	0.13	*
SRA → F3	0.11	*
DPA → F1	-0.04	0.65
DPA → F2	-0.19	*
DPA → F3	-0.17	*
STA → F1	-0.43	***
STA → F2	-0.45	***
STA → F3	-0.28	***
CFA goodness-of-fit statistics: Chi-square (χ^2) = 1488.80; df = 772; χ^2/df = 1.93; RMSEA = 0.048; SRMR=0.074 (confidence interval of 90% from 0.045 to 0.052)		

Note: SRA = Surface approach to learning; DPA = Deep approach to learning; STA = Strategic approach to learning.
F1 = Factor 1 (plagiarizing and manipulating data or references in coursework);
F2 = Factor 2 (contravening examination regulations)
F3 = Factor 3 (lying/bribery/impersonation in coursework and examinations)

* Standardized regression coefficient is statistically significant at $p < 0.05$
*** Standardized regression coefficient is statistically significant at $p < 0.001$

Figure 1: Hypothesized theoretical model of the relationship between business students' approaches to learning and cheating behavior

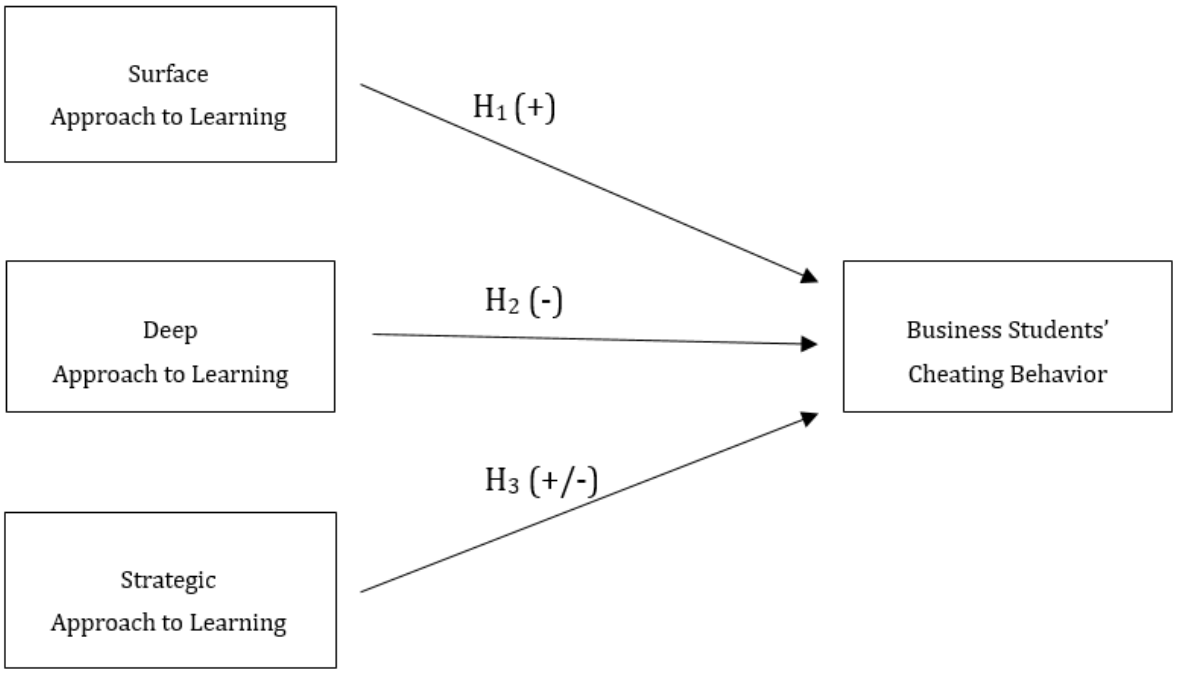
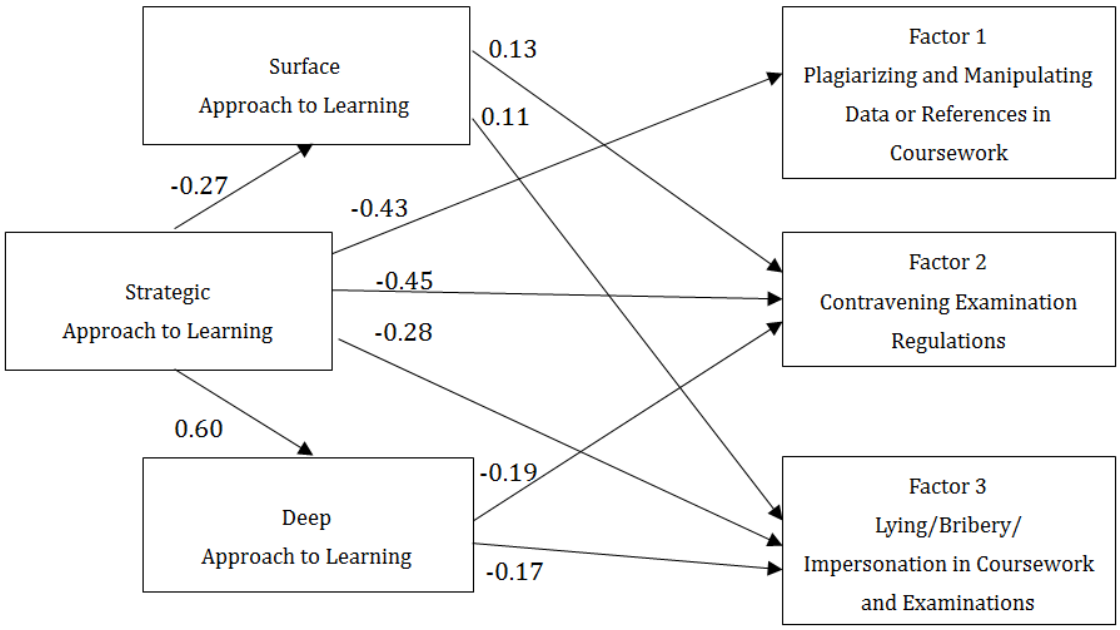


Figure 2: Results of Theoretical Model Testing



* all relationships indicated above are statistically significant (p=0.05)

[1] A copy of the research instrument is available from the authors on request.
[2] Twelve (out of 34) items were discarded in the EFA due to poor factor loadings of less than 0.5.
[3] Variance inflation factors (VIF) were calculated to check multicollinearity. The VIF values ranged from 1.1 to 1.5, indicating that multicollinearity is not an issue (Hair et al. 2010).